

# Some Little Known Fishes from Kochi Prefecture (Prov. Tosa), Japan, Including One New Species of the Family Peristediidae

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In the present paper I propose to record 15 species of fishes which have been unknown to Kochi Prefecture. They were recently collected from various localities of the prefecture, with the assistance of students of the Kochi University. One of them seems to be new to science and another to the fauna of Kochi. All the specimens, except *Rhina ancylostoma* BLOCH & SCHNEIDER which was too large to preserve, are deposited in my laboratory.

Some twenty unidentified specimens which are probably referable to more than 10 species are preserved in my laboratory. I am now trying to identify them with a view to adding them to the fauna of Kochi Prefecture in "A catalogue of fishes of Kochi Prefecture" which will be issued in the near future.

## Rhinobatidae

1. *Rhina ancylostoma* BLOCH & SCHNEIDER Shinonome-sakatazame

A single specimen, about 3 m long, was captured with Jigoku-ami (a kind of net) off Susaki, about 40 km west of Kochi City, in September 24, 1957. I identified it with this species by the photograph taken by a camera-man of the Kochi Shimbun.

Distrib.-Wakayama Pref. to Red Sea ; Africa and Australia.

## Mobulidae

2. *Mobula diabolus* (SHAW) Hime-itomakiei

*Raja diabolus* SHAW, General zoology, vol. 5, 1804, p. 291.

*Raia eregoodoo-tenkee* CUVIER, Règne animal, vol. 2, 1829, p. 402.

*Cephaloptera kuhlii* (VALENCIENNES) MÜLLER & HENLE, Syst. Besch. Plagiostomen, 1841, p. 185, pl. 59, fig. 1.

No spine at base of tail. Color uniform bluish brown above, whitish below.

A single specimen, 460 mm long measuring from tip of upper jaw to posterior end of disc. I follow Dr. FOWLER's opinion (1941 : Smiths. Inst. U. S. Nat. Mus. Bull. 100, vol. 13, p. 480) in admitting *Cephaloptera kuhlii* MÜLLER & HENLE to the synonymy of this species.

Distrib.-Japan (locality unknown) to Red Sea ; Africa and Australia.

## Nomeidae

3. *Psenes cyanophrys* CUVIER & VALENCIENNES Suji-hanabirauo

D.  $\text{X}-25$  ; A.  $\text{III}, 22$  ; L.l. ca 60. Head 3.1 in length without caudal ; depth 1.9 ; eye 3.6 in head ; interorbital 2.6 ; snout 4.1 ; depth of caudal peduncle 2.9. Snout truncated. Mouth very oblique ; maxillary not reaching to below frontborder of eye. Diameter of eye somewhat more than snout and less than interorbital space. Lower jaw extends slightly beyond upper. Teeth pointed in single distant rows on both jaws. Head scaly. Soft dorsal and anal deeply covered with small scales ; pectorals somewhat pointed, equal to head length ; caudal forked. Color in formalin uniform yellowish gray. All scales with a brownish spot, forming narrow longitudinal bands. Spinous dorsal and ventrals blackish ; soft dorsal and anal dusky ; pectorals and caudal yellowish.

A single specimen, 132 mm long, was obtained by Mr. Osamu OKAMURA, a student of the Kochi University, at the Mimase market, Kochi City.

Distrib.-All warm seas, as far north as Wakayama Pref.

4. *Cubiceps gracilis* LOWE Oki-medai

*Seriola (Cubiceps) gracilis* LOWE, Proc. Zool. Soc., pt. 9, 1843, p. 82 Madeira.

D.  $\text{X}-\text{I}, 22$  ; A.  $\text{III}, 21$  ; P. 24 (uppermost two unbranched) ; V. I, 5 ; gill-rakers on first arch  $9+1+18$  (the last rudimentary). Head 3.1 in length without caudal, measured to base of uppermost caudal ray ; depth 3.4 ; eye 3.6 in head ; interorbital 3.3 ; snout 3.5 ; depth of caudal peduncle 3.3. Body oblong-elongate, moderately compressed ; snout rounded. Pectorals large, much longer than head ; caudal deeply forked. Teeth on jaws, vomer, palatines and tongue. Color in formalin uniform brownish violet ; pectoral and ventral paler.

A single specimen, 510 mm long, was obtained by Mr. Osamu OKAMURA, a student of the Kochi University, at the Kochi Fish Market. Five specimens of this species had been reported by Dr. ABE from Japanese waters (Journ. Oceanograph. Soc. Japan, vol. 11, no. 2, 1955, p. 75, 4 figs.). The specimen before me seems to be the second occurrence of this species to record from Japan.

Distrib.-Western Pacific to Mediterranean and Cape of Goode Hope to eastern Atlantic.

### Serranidae

5. *Epinephelus diacanthus amblycephalus* (BLEEKER) Kokuten-aohata

*Serranus amblycephalus* BLEEKER, Act. Soc. Scient. Indo-Neerl., 2 (7), 1857, p. 32. Amboina-*Epinephelus diacanthus amblycephalus* MASUDA, Annot. Zool. Japon., vol. 21, no. 2, 1942, p. 111, pl. 5.

D.  $\text{X}, 15$  ; A.  $\text{III}, 8$  ; L.l. ca 100. Head 2.5 in length without caudal ; depth 2.6 ; eye 4 in head ; interorbital 5.7 ; snout 4.4 ; depth of caudal peduncle 4 ; gill-rakers on first arch  $7+1+14$ . Snout entirely scaly. Caudal rounded. Color light yellowish brown, with 7 dark brown crossbands, edged in front and behind by a series of small round black spots ; the first on head, through interorbital space ; the second across nape ; the fifth above anal spines ; the last on caudal peduncle ; ventral dusky.

A single specimen, 122 mm long, was obtained by Mr. Kunio AMAOKA, a student of

the Kochi University, at the Mimase market, Kochi City.

Distrib.-Probably Riu Kiu or Formosa to Amboina, E. Indies.

### Apogonidae

6. *Gymnapogon japonicus* REGAN Kudari-bōzugisu

*Henicichthys foraminosus* TANAKA

Head 3 in length without caudal ; depth 4.5 ; eye 4 in head ; interorbital 8 ; snout 4 ; depth of caudal peduncle 2.4. No scale. Eye subequal to snout ; caudal very large, emarginate, its length measuring from base of uppermost ray somewhat greater than head. Color in formalin uniform reddish.

A single specimen, 48 mm long, was obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from a tide pool at Saga, about 70 km south-west of Kochi City.

Distrib.-Kominato, Chiba Pref. to Nagasaki and Ōshima, Yamaguchi Pref.

### Chaetodontidae

7. *Chaetodon lunula* (LACÉPÈDE) Chōhan

Three specimens, 35 to 41 mm long, were obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from tide pools at Shimonokae, near Tosa-Shimizu City, and Saga, about 70 km south-west of Kochi City.

Distrib.-Misaki, Kanagawa Pref. to Red Sea ; Africa ; Polynesia and Hawaii.

### Abudefdufidae

8. *Abudefduf septemfasciatus* (CUVIER & VALENCIENNES) Shichisen-suzumedai

A single specimen, 62 mm long, was obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, at Okinoshima.

Distrib.-Tokara, Kagoshima Pref. to India ; Australia and Polynesia.

9. *Abudefduf leucozonus* (BLEEKER) Hakusen-suzumedai

Color yellowish brown, with a white vertical band descending from base of median dorsal spines ; a large black ocellus at base of last three dorsal spines and above lateral line ; anterior edge of anal blackish.

Two specimens, 18 and 32 mm long respectively, were obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from a tide pool at Okinoshima.

Distrib.-Kominato, Chiba Pref. to the E. Indies and Polynesia.

### Scorpaenidae

10. *Sebastes pachycephalus* TEMMINCK & SCHLEGEL Mura-soi

Three specimens, 155 to 160 mm long, were obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, at Shimonokae, near Tosa-Shimizu City.

Distrib.-Kominato, Chiba Pref, to Kyushyu ; Korea and China.

### Peristediidae

11. *Paraheminodus kochiensis*, n. sp. Hanabiro-kihōbō

*Satyrichthys murrayi* (KAMOHARA) (not GÜNTHER) (Fig.1), Jap. Journ. Ichthy.,  
vol. 2, no. 1, 1952, p. 9. Mimase, Kochi City.

D. VII, 21 ; A. 21 ; p. 15+2 ; gill-rakers on first arch 5+1+14. Head without rostral process 2.5 in body length exclusive of caudal ; depth 5.2 ; eye 5.5 in head ; orbit 4.8 ; interorbital 5.3 ; snout 2 ; width of head 1.3 ; rostral process measured from tip of upper jaw 3.8 ; longest barbel 1.5 ; pectoral measuring from upper end of base to tip of longest ray 1.4 ; ventral 2.1 ; caudal 2.4 ; eye 2.8 in snout without rostral process.

Body fusiform, tapering ; head large ; snout very broad, depressed and expanded around the edges ; strong spines above eye and at nape ; preopercular shield ending in a long, sharp spine. Rostral process flat, nearly parallel, its length somewhat greater than one-third of distance between their extremity and front margin of orbit ; distance between the two bases subequal to half the length of eye and snout without rostral process taken together ; anterior part of rostral process somewhat expanded, rounded at tip. Interorbital space concave, its width equal to diameter of orbit, with two slight longitudinal ridges diverging backward to base of supraocular spine. A minute spine in the middle of forehead. Maxillary not extending below anterior margin of orbit. Eight pairs of barbels, the outermost largest and two on its inner side close together. The large barbel with about 10 tufts, extending middle of preopercular spine. In many other specimens it extends beyond tip of the spine. Villiform teeth on upper jaw in a rather broad band, extending near angle of mouth ; lower toothless. Scutes 34 in upper lateral row ; 24 in the lower ; ventral row with spines much smaller except anteriorly. Two pairs of abdominal plates before vent ; each of those of the first pair have an anterior prolongation, the breadth 1.8 in length with prolongation.

Dorsal beginning between first and second spines of dorsal series of plates, its tip, when depressed, reaching to base of third dorsal ray ; origin of anal below base of second dorsal ray ; pectoral reaching to above base of fifth anal ray ; ventrals nearly reaching front of vent ; caudal subtruncate. Color uniform reddish brown, paler below, with brownish blotches on head and antero-dorsal part of body. Spinous dorsal brown terminally ; soft dorsal with a broad brown longitudinal band medianly.

Described and figured from a specimen, 175 mm long measured from tip of rostral process to end of caudal, which was obtained by Mr. Shinpei YAMAMOTO, a student of the Kochi University, at the Mimase market, Kochi City. It is registered no. 7235 in the Biological Laboratory, Fac. Lit. Sci. Kochi Univ.

The measurements of some other specimens, which were obtained by myself and Mr. YAMAMOTO, at the same locality, read as shown in table 1.

The present species bears at a glance close resemblance to *Satyrichthys murrayi*.

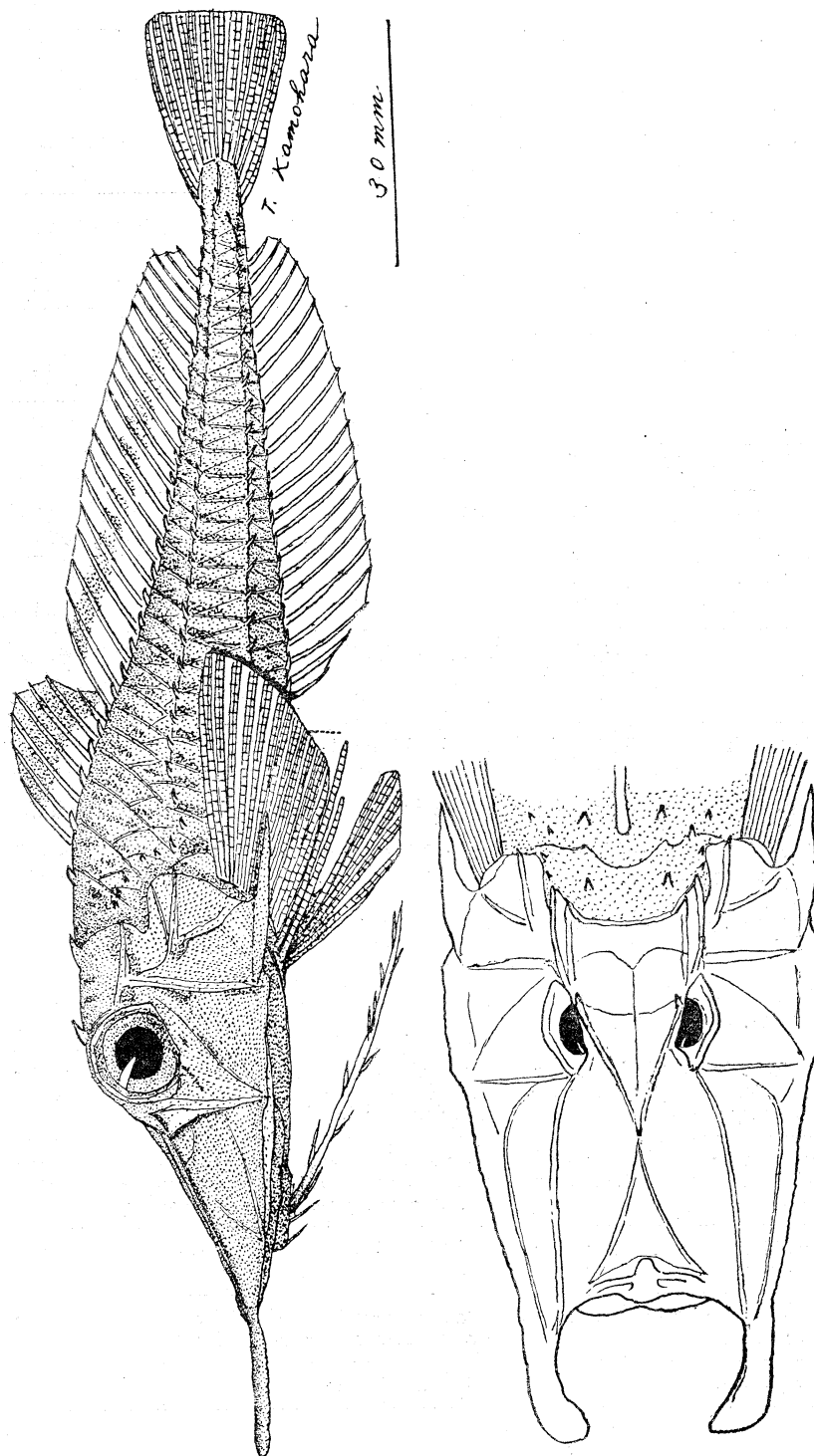


Fig. 1. *Paraheminodus kochiensis*, n. sp.

Table 1.

Specimens	A	B (Type)	C	D	E	F
Total length with rostral process (mm)	183	175	164	147	130	98
Standard length	148	142	127	113	105	78
Length of head without rostral process	58	57	55	48	43	33
Depth of body	28	24	22	20	16	14
Diameter of orbit	12	12	11	10	10	8
Length of snout	31	28	26	22	21	17
Interorbital space	12	12	10	10	9	8
Depth of caudal peduncle	5	4	4	4	3	3
Width of head	49	44	43	39	33	29
Length of rostral process	17	15	13	12	9	7
Longest barbel	51	38	44	41	36	24
D.	VII, 20	VII, 21	VII, 20	VII, 21	VII, 21	VII, 20
A.	20	21	20	20	21	20
Gill rakers on first arch	5+1+15	5+1+14	4+1+14	4+1+15	4+1+15	4+1+14

(GÜNTHER), but differs from the latter in having a rather broad band of villiform teeth on upper jaw. It is very similar to *Paraheminodus laticephalus* (KAMOHARA) (Res. Repts. Kochi Univ., vol. 1, no. 6, 1952, p. 2, fig. 3. Mimase), but the two species may be separated on the basis of the following characters :

Table 2.

<i>laticephalus</i>	<i>kochiensis</i>
Length of rostral process a little smaller than one-third of distance between their extremity and front margin of orbit.	Length of rostral process somewhat greater than one-third of distance between their extremity and front margin of orbit.
Distance between the bases of two rostral processes subequal to half the length of snout without rostral process.	Distance between the bases of two rostral processes subequal to half the length of eye and snout, without rostral process, taken together.
Width of interorbital space much greater than diameter of orbit.	Width of interorbital space equal to diameter of orbit.
Narrow band of villiform teeth on anterior half of upper jaw.	Rather broad band of villiform teeth on upper jaw, extending near angle of mouth.
Caudal slightly concave.	Caudal subtruncate.

### Eleotridae

12. *Asterropteryx semipunctatus* RÜPPELL Hoshi-haze

Many specimens, 25 to 55 mm long, were obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from tide pools at Saga, about 70 km south-west of Kochi City.

Distrib. -Hachijojima to Red Sea ; Australia ; Melanesia ; Polynesia and Hawaii.

### Gobiidae

13. *Clariger cosmurus* JORDAN & SNYDER Sejiro-haze

Color whitish, with a broad blackish longitudinal band from point of lower jaw and snout through eye, to near end of caudal peduncle. Caudal blackish, broadly edged with white terminally.

A single specimen, 30 mm long, was obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from a tide pool at Shimonokae, near Tosa-Shimizu City.

Distrib. -Kominato, Chiba Pref. to Ōshima, Shizuoka Pref.

### Blenniidae

14. *Istiblennius bilineatus* (PETERS) Tama-ginpo

*Salarias bilineatus* PETERS, Monatsber. Akad. Wiss. Berlin, 1868, p. 268 ; Samar Island, Philippines.

*Alticus margaritarius* SNYDER, Proc. U. S. Nat. Mus., vol. 35, 1908, p. 106 ; Tanegashima. -Ibid, vol. 42, 1912, p. 448, pl. 61, fig. 3. Tanegashima.

*Alticus margaritatus* KENDALL & RADCLIFFE, Mem. Mus. Comp. Zool., vol. 35, 1912, p. 137, pl. 7, fig. 3 ; pl. 8, fig. 1 ; PagoPago, Samoa.

D. XII, 18—19 ; A. 21. Head 5.1 in length without caudal ; depth 5.1—5.5 ; eye 4—4.7 in head ; interorbital 6—7 ; depth of caudal peduncle 2—2.3. Anterior profile of head vertical ; crest of head long, of moderate height, extending from between eyes almost to first dorsal ; dorsal deeply notched ; upper border of eye with a cirrus, the edge of which is fringed. Color in formalin dusky, with about 6 pairs of faintly defined dark brown crossbars and with 2 rows of pale ocelli along the side of body ; numerous smaller ones along the back ; head covered with small black spots.

Two specimens, 75 and 84 mm long respectively, were obtained by Mr. Osamu OKAMURA, a student of the Kochi University, at Muroto. I follow Dr. HERRE's opinion (1953 : Check list of Philippine fishes, p. 810) in admitting *Alticus margaritarius* SNYDER and *A. margaritatus* KENDALL & RADCLIFFE, to the synonymy of this species.

Distrib. -Tanegashima to India ; Australia ; Melanesia and Polynesia.

15. *Istiblennius lineatus* (CUVIER & VALENCIENNES) Sen-kaeruuo

Large crest present on head. Color in formalin yellowish brown, side of body with several dark narrow longitudinal lines.

One male, 80 mm long, was obtained by Messrs. T. NODA, K. AMAOKA and T. HIRATA, all students of the Kochi University, from a tide pool at Shimonokae, near Tosa-Shimizu City.

Distrib. -Tanegashima to Red Sea ; Australia ; Micronesia ; Melanesia ; Polynesia and Hawaii.